

VDSL2 Router

VC-200M / VC-200S

User's Manual

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Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- 1. Reorient or relocate the receiving antenna.
- 2. Increase the separation between the equipment and receiver.
- 3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- 4. Consult the dealer or an experienced radio technician for help.

FCC Caution:

To assure continued compliance (example-use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the Following two conditions: (1) This device may not cause harmful interference, and (2) this Device must accept any interference received, including interference that may cause undesired operation.

R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL OF 9 March 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE)

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000.

WEEE



To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

Revision

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Chapter 1 Introduction

The PLANET VDSL2 Router, VC-200M / VC-200S is based on two core networking technologies: Ethernet and VDSL2 (Very High Speed Digital Subscriber Line 2). This technology offers the absolute fastest possible data transmission speeds over existing copper telephone lines without the need for rewiring.

The ideal situation, the date rate of VDSL2 can up to 40Mbps upstream and 100Mbps downstream.

The VC-200M / VC-200S supports ITU-T G993.2, and provide selectable operating mode of bridging and routing.

Via the user-friendly management interface, VC-200M / VC-200S can be managed by computer running standard web browsers. Furthermore, VC-200M / VC-200S provides DHCP server, NAT, virtual server, DMZ, DNS proxy, and UPnP capability. It provides the natural firewall function (Network Address Translation, NAT). All incoming and outgoing IPs are monitored and filtered

VC-200M/VC-200S provide 4-port 10/100 Ethernet switch, it provide data deliver and receive in local network, so that it is the best selection for small enterprise and residence.

1.1 Feature

- Internet Access Features
 - Shared Internet Access. All users on the LAN can access the Internet through the VC-200M / VC-200S using only a single external IP Address. The local (invalid) IP Addresses are hidden from external sources. This process is called NAT (Network Address Translation).
 - *Built-in VDSL2 modem.* The VC-200M/VC-200S provides VDSL2 modem, and supports all common VDSL2 connections.
 - ♦ Fixed or Dynamic IP Address or PPPoE. On the Internet (WAN port) connection, the VC-200M / VC-200S supports both Dynamic IP Address (IP Address is allocated on connection) and Fixed IP Address.

Advanced Internet Functions

- *Virtual Servers.* This feature allows Internet users to access Internet servers on your LAN. The required setup is quick and easy.
- *Firewall.* Supports simple firewall with NAT technology.
- ◆ Universal Plug and Play (UPnP) UPnP allows automatic discovery and configuration of the Broadband Router. UPnP is supported by Windows ME, XP, or later.

- Selectable VDSL2 transmission modes. User can choose • transmission modes (8a,8b,12a,12b,and 17a) through management interface on VC-200M / VC-200S
- User Friendly Interface. VC-200M / VC-200S can be managed and ٠ controlled through Web UI.
- LAN Features
 - 4-Port Switch. The VC-200M / VC-200S incorporates a 4-port ٠
 - 10/100BaseT switching hub, making it easy to create or extend your LAN. DHCP Server Support. Dynamic Host Configuration Protocol provides a dynamic IP address to PCs and other devices upon request. The VC-200M / ٠ VC-200S can act as a DHCP Server for devices on your local LAN.

1.2 Package Contents

- VC-200M / VC-200S Unit
- Power Adapter
- Quick Installation Guide
- User's Manual CD
- RJ-11cable
- RJ-45 cable

1.3 Physical Details

Front Panel

VC-200M front panel

PLANET	VDSL2 Router		dsl lnk ()	0	— LA O	N	O lnk/act	
VC-200M		PWR	ACT ()	0	2 0	3 ()	4 〇 100	

VC-200S front panel

PLANET VDSL2 Router		DSL LNK ()	0	_ LA	N	
VC-2005	O	ACT ()	0	Ô	3 0	4 0 100

Front Panel LED definition

L	ED	State	Description
PWR		ON	When the router is powered on, and in ready state.
		OFF	When the router is powered off.
		Flashing	Router is trying to establish a connection between VC-200M and VC-200S, or telecom's network.
DSL	LINK	ON	Successfully connected between VC-200M and VC-200S, or router and telecom's network, and in ready state.
	ACT Flashing		Data is being transmitted or received.
LAN	LNK/ACT	Flashing/ON	Data is being transmitted or received via the corresponding LAN port, and in ready state.
1-4	100	ON	Orange color, it corresponding LAN port is using 100BaseT.

Rear Panel



Rear panel Port and Button Definition

Connector	Description
POWER	Power connector with 12V DC 1 A
RESET	Press 1-3 seconds for reboot system.
Dutton	Press more than 5 seconds for reset to factory default setting.
	Router is successfully connected to a device through the corresponding
LAN (1-4)	port (1, 2, 3, or 4). If the LED light of LNK/ACT is flashing, the Router
	is actively sending or receiving data over that port.

PHONE	The RJ-11 connector allows voice communication between the router and phone through a twisted-pair phone wire.
VDSL2	The RJ-11 connector allows data communication between the router and the VDSL2 network through a twisted-pair phone wire

Chapter 2 Hardware Installation

This chapter offers information about installing your router. If you are not familiar with the hardware or software parameters presented here, please consult your service provider for the values needed.

2.1 System Requirement

- 1. Personal computer (PC)
- 2. Pentium II 233 MHz processor minimum
- 3. 32 MB RAM minimum
- 4. 20 MB of free disk space minimum

2.2 Hardware Installation

This section describes how to connect and configure VC-200M/VC-200S.



Step 1. Connect the VDSL2 Line

There are two ways to connect VC-200M or VC-2000S.

I. Connect the supplied RJ11 cable to VDSL2 ports between VC-200M and

VC-200S.

II. Uses the supplied RJ-11cable connects to VC-200M or VC-200S with your phone company.

Step 2. Connect a Workstation to the Router's LAN port

Uses the supplied RJ-45 cable connects to PC with the Switching Hub port of VC-200M / VC-200S. Both 10Base-T and 100Base-TX connections can be used simultaneously.

If required, using a standard RJ-45 cable connect to any LAN port of VC-200M / VC-200S with a normal Hub.

Any LAN port of VC-200M / VC-200S will automatically function as an "Uplink" port when required.

Step 3. Connect the Power Adapter to the Router

Connect the power adapter to the port labeled 12V DC on the rear panel of router.

Step 4. Connect All Cables to the Network

The procedure for connecting cables differs depending on whether or not your telephone equipment is connected to a POTS splitter.

2.3 Configuring the Network Properties

Configuring PC in Windows XP

- 1. Go to **Start / Control Panel (in Classic View)**. In the Control Panel, double-click on **Network Connections**
- 2. Double-click Local Area Connection.



3. In the Local Area Connection Status window, click Properties.

Local Area Connection S	štatus 🛛 🛛 🛛 🔀
General Support	
Connection	
Status:	Connected
Duration:	00:19:32
Speed:	100.0 Mbps
Activity Sent -	- 🐑 - Received
Packets:	27 0
Properties Disable	Close

4. Select Internet Protocol (TCP/IP) and click Properties.

🕂 Local Area Connection Properties 🛛 🔹 💽
General Authentication Advanced
Connect using:
ASUSTeK/Broadcom 440x 10/100 Integrated Controller
Configure
This connection uses the following items:
Client for Microsoft Networks Elie and Printer Sharing for Microsoft Networks QoS Packet Scheduler Internet Protocol (TCP/IP)
Install Uninstall Properties Description Transmission Control Protocol/Internet Protocol The default
wide area network protocol that provides communication across diverse interconnected networks.
Show icon in notification area when connected
OK Cancel

- 5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
- 6. Click **OK** to finish the configuration.

Internet Protocol (TCP/IP) Pro	perties 🛛 💽 🔀			
General Alternate Configuration				
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.				
 Obtain an IP address automatic 	cally			
Use the following IP address:				
IP address:				
Subnet mask:				
Default gateway:				
 Obtain DNS server address au 	tomatically			
OUse the following DNS server	addresses:			
Preferred DNS server:				
Alternate DNS server:				
	Advanced			
	OK Cancel			

Configuring PC in Windows 2000

- 1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network and Dial-up Connections**.
- 2. Double-click Local Area Connection.



3. In the Local Area Connection Status window click Properties.

- 4. Select Internet Protocol (TCP/IP) and click Properties.
- 5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
- 6. Click **OK** to finish the configuration.

Internet P	rotocol (TCP/IP) P	operties	? ×			
General						
You car this cap the app	You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.					
• 0	otain an IP address au	omatically				
O U:	se the following IP add	ress:				
IP ac	dress:					
Subr	et mask:					
Defa	ult gateway:					
© 01	otain DNS server addr	ess automatically				
O U:	se the following DNS s	erver addresses:				
Prefe	rred DNS server:		_			
Alten	iate DNS server:					
		A	dvanced			
		OK	Cancel			

Configuring PC in Windows 98/Me

- Go to Start / Settings / Control Panel. In the Control Panel, double-click on Network and choose the Configuration tab.
- 2. Select TCP/IP ->

NE2000 Compatible, or the name of your Network Interface Card (NIC) in your PC.

Network ? 🗙
Configuration Identification Access Control
The following <u>n</u> etwork components are installed:
Microsoft Family Logon ASUSTeK /Broadcom 440x 10/100 Integrated Controller
Dial-Up Adapter
TCP/IP -> ASUSTeK/Broadcom 440x 10/100 Integrated TCP/IP -> Dial-Up Adapter
Add Remove Properties
Primary Network Logon:
Microsoft Family Logon
Eile and Print Sharing
Description TCP/IP is the protocol you use to connect to the Internet and wide-area networks.
OK Cancel

- 3. Select the **Obtain an IP address automatically** radio button.
- 4. Then select the **DNS Configuration** tab.
- 5. Select the **Disable DNS** radio button and click **OK** to finish the configuration.

TCP/IP Properties				? ×
Bindings DNS Configuration	Adv Gateway	anced WINS Con	Ne figuration	etBIOS IP Address
Disable DNS				
Host:		D <u>o</u> main:		
DNS Server Sea	rch Order -		<u>A</u> dd <u>∃</u> emove]]
Domain Suffix Se	arch Order	F	A <u>d</u> d Re <u>m</u> ove]
			ĸ	Cancel

Configuring PC in Windows NT4.0

- Go to Start / Settings / Control Panel. In the Control Panel, double-click on Network and choose the Protocols tab.
- 2. Select TCP/IP Protocol and click Properties.

NetBEUI Pr NWLink IP	otocol K/SPX Compati tBIOS	ble Transport	
TCP/IP Pro	tocol		
	Demana	1 Burneting	
800	Temove	Eropendes.	
Transport Con area network p diverse interco	rol Protocol/Int protocol that pro nnected netwo	ernet Protocol. 7 ovides communio rks.	The default wide cation across

3. Select the **Obtain an IP address from a DHCP server** radio button and click **OK**.

P Address DNS	WINS Addre	ss Rout	ing	
An IP address car by a DHCP server ask your network the space below.	n be automatica r. If your netwo administrator fo	ally assign rk does n r an addre	ed to this no ot have a D ess, and the	stwork card HCP server, n type it in
Adagter:				
(your network ad	lapter)			
Dbtain an II	P address from	a DHCP s	erver	
F C Specify an	IP address —			
IP Address:	-	22 1		
S <u>u</u> bnet Mask:	-	22 3		
Sybnet Mask: Default <u>G</u> atew	ay.	*/ 1 ** †		
Subnet Mask: Default <u>G</u> atew	ay:	*/ 1		A <u>d</u> vanced

Note: By factory default: DHCP is disabled, Device Mode is Bridge Mode, VC-200M's default LAN IP address is 192.168.1.100, and VC-200S is 192.168.1.200.

So please set fix IP address in TCP/IP properties of your network card (show as below), then you can start your Web Browser to login VC-200M or VC-200S (please see **Chapter 3.3**).

SNetwork Connections		X
Eile Edit View Favorites Tools Advanced Help		2
🔇 Back 🔹 🕘 🖌 🌮 🤌 Search 🌔 Folders 🛛 😹 🎲 🗙 🌱 🛄 🔹		
Address S Network Connections		💌 🛃 Go
LAN or High-Speed Internet LAN or High-Speed Internet Local Area Connection 2 Readek RTB 169 Gigabit Ether Local Area Connection Properties Local Area Connection Properties Local Area Connection Properties Connect using: Marvell Yukon 88E8053 PCI-E Gigabi Configure N General Authentication Advanced Connect using: Marvell Yukon 88E8053 PCI-E Gigabi Configure This connection uses the following items: Connect using: General Authentication Advanced Connect using: Connect using: Connect using:	E Internet Protocol (TCP/IP) Properties General You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings. C _ Obtain an IP address automatically C _ Obtain DNS server address automatically C _ Obtain DNS server address automatically C _ Obtain DNS server: 168 . 95 . 1 . 1 _ Alternate DNS server: 168 . 95 . 1 . 1 _ Advanced OK _ Cancel	21 × VC-200S IP : 192.168.1.101 Mask: 255.255.255.0 GW: 192.168.1.200

Chapter 3 Configuration

3.1 Determine your connection settings

Before you configure the router, you need to know the connection information supplied by your VDSL2 service provider.

3.2 Connecting the VDSL2 Router to your network

Unlike a simple hub or switch, the setup of the VDSL2 Router consists of more than simply plugging everything together. Because the Router acts as a DHCP server, you will have to set some values within the Router, and also configure your networked PCs to accept the IP Addresses the Router chooses to assign them.

Generally there are several different operating modes for your applications. And you can know which mode is necessary for your system. These modes are router, bridge.

3.3 Configuring with Web Browser

It is advisable to change the administrator password to safeguard the security of your network.

To configure the router, open your browser, type <u>http://192.168.1.100</u> for VC-200M and <u>http://192.168.1.200</u> for VC-200S in the browsers address box.

Save this address in your Favorites for future reference.



At login prompt will appear, and default password is "admin", then click 'LOGIN'.

Welcome to PLANET VDSL2 Web Management

i lease cliter	passworu to i	ogin.	
Password	•••••		
	LOGIN		

3.4 Quick Installation

There are two device modes: Bridge Mode and Router Mode can configure the VC-200M and VC-200S when in different mode, displayed show as below.

Bridge Mode



Step1- Click "**Bridge Mode**" in VC-200M and VC-200S, and then press "**APPLY**" to submit setting.

PLANET	Home Logout
Networking a commencation	
System	Device Mode
Host Name Config	
System Time	The Device mode allows the user to specify the mode setting for the device. Users can choose Router or Bridge
Administrator Settings	mode.
Firmware Upgrade	
Device Mode	
System Status	O Router Mode
System Log	💿 Bridge Mode
Reset	
WAN	
LAN	HELP APPLY CANCEL
NAT	

Step2- Select profile in VC-200M and VC-200S, we suggest select same profile in VC-200M and VC-200S, otherwise the connection won't synchronously.

PLANET Networking & Communication	Home Logo	ut
System WAN LAN NAT Route UPnP Vdsl2 b thannelConfig b LineConfig b ProfileConfig b Activate b thannelStatus	Profile Configuration of line for specific band plans. Profile Vdsl2 Profile17a - Bandplan ITU Annex B_B12	
	HELP APPLY CANCED	

Step3- Click "Active" to make the connection is ready.

PLANET Networking & Commenication	Home (Logo
System WAN LAN NAT Route UPnP Vdsl2	Activate Deactivate Activating or Deactivating the line Line
 ChannelConfig LineConfig ProfileConfig 	
 Activate ChannelStatus VersionInfo 	
	HELP APPLY CALLED

Step4- After successful connect between VC-200M and VC-200S, the information will show on channel status.

PLANET Networking & Communication				Home Logou
System WAN LAN	Channel Status			
Route		Unctroam	Downstroam	-
UPnP	Actual Data Rate	25012 kbps	97820 kbps	-
ChannelConfig	Actual Interleave Delay	9.000000 ms	4.000000 ms	
LineConfig	Total CRC Count	0	0	-
Activate	Total FEC Count	4146	0	-
 ChannelStatus VersionInfo 	Actual INP	1.000000 Symbols	0.500000 Symbols	-

Router Mode



Step1- Click "**Router Mode**" in VC-200M and VC-200S, and then press "**APPLY**" to submit setting.



Step2- Change LAN IP address, e.g. VC-200M is 192.168.1.100, VC-200S is 192.168.99.100.



Step3- Select WAN IP address, e.g. we set WAN to the Static IP address.

PLANET Networking & Communication			Home Log
System WAN Dynamic IP IP Settings DNS LAN NAT Route UPnP Vdsl2	WAN The Device can be conn C Dynamic IP Address C Static IP Address C PPPoE	ected to your service provider in any of the following ways: Obtain an IP address automatically from your service provider. Uses a static IP address. Your service provider gives a static IP address to access Internet services. PPP over Ethernet is a common connection method used for xDSL	
		HELP APPLY CANCEL	

Step4- Fill in WAN IP address, e.g.VC-200M is set 10.1.1.100, VC-200S is 10.1.1.200, and gateway address should point each other.

PLANET Networking & Communication	Home Logout
System WAN Dynamic IP I P Settings D PPPOE D DNS LAN NAT POUTE	IP Settings If your Service Provider has assigned a fixed IP address, enter the assigned IP Address, Subnet Mask and ISP Gateway Address provided. IP address assigned by your 10, 11, 10, 100
UPnP Vdsl2	Subnet Mask 255 255 0 ISP Gateway Address 10 1 1 200 Does ISP provide more IP addresses TYes
	HELP (APPLY CALLER

Step5- Select profile in VC-200M and VC-200S, we suggest select same profile in VC-200M and VC-200S, otherwise the connection won't synchronously.

PLANET Referencing & Communication			Home Log	gout
System WAN LAN NAT Route CUPNP Vdsl2 b ChannelConfig b LineConfig b LineConfig b Activate b ChannelStatus b VersionInfo	Profile Config Configuration of line for s Profile	specific band plans. Vdsl2 Profile17a - Bandplan ITU Annex B_B12		
		HELP APPLY CALLER		

Step6- Click "Active" to make the connection is ready.

		Home Logout
System WAN LAN NAT Route UPnP VdSl2 D ChannelConfig D LineConfig D Activate D ChannelStatus D ChannelStatus	Activate Deactivating the line Line	

Step7- After successful connect between VC-200M and VC-200S, the information will show on channel status.

				Home Logo
System WAN LAN NAT	Channel Status Status of the bearer .			
Route		Upstream	Downstream	
UPnP Vdsl2	Actual Data Rate		98336 kbps	
ChannelConfig	Actual Interleave Delay	9.000000 ms	4.000000 ms	
LineConfig	Total CRC Count	0	0	
 ProfileConfig Activate 	Total FEC Count	8848	12	
ChannelStatus VersionInfo	Actual INP	1.000000 Symbols	0.500000 Symbols	

Note: Please reference the throughput test for Bridge Mode and Router Mode in **Appendix A: Throughput Test for VDSL2 profiles**.

3.5 Configuration Menu for Administrator

The chapter is only for Administrator.

The Homepage is the first screen displayed when a user logs on the VC-200M/VC-200S Web UI. The VC-200M/VC-200S Web UI is categorized into two modules.

1. Setup Wizard- An easy-to use setup wizard provides the most common configurations.

2. Advanced Setup- Advanced setup features allow the user to configure all the functions that are supported by VC-200M/VC-200S like routing, and UPnP.

3.5.1 Setup Wizard

The Setup Wizard is designed for ease-of-use in order to quickly configure the most common settings. The Admin can view the **Setup Wizard** link in the Web UI. The wizard's first step that allows the admin to configure the system host settings displayed show as below.

PLANET Networking & Communication			Home Logout
 1. Host Settings 2. Time Zone 3. WAN Type 4. WAN Settings 5. DNS 	1. Host Settings Host Name Domain Name Enter the unique host na	vdsl2 planet.com.tw me for the device, and the domain name of your organization.	HELP NEXT

There are five steps to complete the wizard. Follow the instructions given in each step and enter the desired settings.

3.5.2 Advanced Setup

Click on the **Advanced Setup** link in the Web UI in case you want to configure a wider range of settings. The following configuration options are displayed in the left navigation bar, show as below.

- System
- WAN
- LAN
- NAT
- Route
- UPnP
- Vdsl2

PLANET Networking & Communication	Home Logout
System	Advanced Setup
WAN	
LAN	The device supports advanced functions like hacker attack detection, client filtering, virtual servers, special
NAT	application access, and a virtual DMZ host.
Route	Planet recommends you keep the default settings.
UPnP	
Vdsl2	

3.5.3 System

The **System** link can be viewed in the left navigation bar. The following are the options available under system, show as below.

- Host Name Config
- System Time
- Administrator Settings
- Firmware Upgrade
- Device Mode
- System Status
- System Log
- Reset

PLANET Networking & Communication	Home Logo
System Host Name Config	System Setting
System Time	The device supports advanced functions like hacker attack detection, client filtering, virtual servers, special
Administrator Settings	application access, and a virtual DMZ host.
Firmware Upgrade	
Device Mode	
System Status	
System Log	
Reset	
WAN	
LAN	
NAT	
Route	
UPnP	
Vdsl2	

3.5.3.1 Host Name Config

To configure System settings, the user has to enter host and domain name. Click on the **Host Name Config** link in the left navigation bar, show as below.

PLANET Retworking & Communication				Home Logout
System Host Name Config	Host Name			
System Time	Enter the host name	representing your host and t	the domain name you want to config, then you can d	o web
Administrator Settings	configuration by typir	ng the whole name you confi	g instead by typing the ip address.	
Firmware Upgrade				
Device Mode	Host Name	vdsl2		
System Status	Domain Nama	alough going but		
System Log	Domain Name	planeccom.w		
Reset				
WAN				
LAN				
NAT				
Route				
UPnP				
Vdsl2			HELP APPLY CANCEL	

Filed	Description
Host Name	Enter the host name of the VC-200M/VC-200S.
Domain Name	Enter the domain name of the VC-200M/VC-200S.

3.5.3.2 System Time

To configure the system time zone, click on the **System Time** link in the left navigation bar, show as below.

PLANET Networking & Commanication	Home Logout
System b Host Name Config b System Time b Administrator Settings b Firmware Upgrade b Device Mode b System Status b System Log b Reset	System Time Connecting to a Simple Network Time Protocol (SNTP) server allows the device to synchronize the system clock to the global Internet. The synchronized clock in the device is used to recored the security log and control client filtering. Set Time Zone (GMT) Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London
WAN LAN NAT	
UPnP Vdsl2	

The screen contains the following details:

Filed	Description
Set Time Zone	Synchronize the system clock with the SNTP server.

• Click "CANCEL" to exit from this page without saving the changes.

• Click "**APPLY**" to save the information that has been entered.

3.5.3.3 Administrator Settings

To add a user or change user's password, click on the **Administrator Settings** link in the left navigation bar, show as below.

PLANET Networking & Communication		Home	1 4	ogc
System Host Name Config System Time Administrator Settings Firmware Upgrade System Cog System Log System Log Reset WAN LAN NAT Route UPnP YdSI2	Administrator Settings Set a password to restrict management access to the device. If you want to manage the device from a remote location (outside of the local network), you must also specify the IP address of the remote PC. Current Password Password (3-12 Characters) Auto-Logout 30 Min (Auto-Logout Time, at least >= 1 Min)			
	HELP (APPLY CANCEL			

While adding a user, each user must be assigned a separate port. Hence the number of user that can be added to the system depends on the number of ports available on the VC-200M/VC-200S.

Filed	Description
Current Password	This is the password associate with the administrator. This is enabled only for the user Administrator login.
Password	This is the password of the login administrator.
Re-Type Password	This is password verification.
Auto-Logout Time	The auto-logout time, at least one minute.

3.5.3.4 Device Mode

The VC-200M/VC-200S used in the reference system is able to act as either a bridge or a router. Clicking on **Device Mode** link on the left navigation bar allows the user to change the mode of operation, show as below.

Note: B	v factory	default:	Device	Mode is	Bridge	Mode.
11000. D	jiucioij	actualt.	DUTIEU	111040 15	Dilage	

PLANET Retworking & Communication	Home Logout
System	Device Mode
Host Name Config	
System Time	The Device mode allows the user to specify the mode setting for the device. Users can choose Router or Bridge
Administrator Settings	mode.
Firmware Upgrade	
Device Mode	
System Status	O Router Mode
System Log	Bridge Mode
Reset	
WAN	
LAN	HELP APPLY CANCEL
NAT	
Route	
UPnP	
Vdsl2	

3.5.3.5 Firmware Upgrade

To update the system firmware, click on the **Firmware Upgrade** link in the left navigation bar, show as below.

PLANET Reservicios & Communication	Home Logout
System b Host Name Config b System Time b Administrator Settings b Firmware Upgrade b Device Mode b System Status b System Log b Reset WAN LAN NAT Route UPnP Vdsl2	Firmware Update Planet Technology Corp. may create new firmware for your Router to improve functionality and performance. Click here to check for an upgrade on Planet's website. Enter the path and name of the upgrade file then click the APPLY button below. You will be prompted to confirm the upgrade. Ermware Version: 2.4.20_PLANET_v0.91b070323 Emowse

- Click "**Browse**" to select a specified file name to change the file Name.
- Click "**APPLY**" to start the firmware update.

3.5.3.6 System Status

To view system status, click on the **System Status** link in the left navigation bar, show as below.

This screen displays the status of certain important system parameters. It also offers control over the current DHCP lease for the IP Address.

PLANET		Home Log
Vetworking & Communication		
System Host Name Config System Time	Status	
Administrator Settings	and hardware version	in screen to see the connection status for the device's warv. An interfaces, infinware in momenta in the number of connected clients to your network.
Firmware Upgrade	Sec.	
Device Mode	INTERNET	
System Status	Cable/DSL	CONNECTED
System Log	WANIP	10.1.1,100
V Reset	Subnet Mask	255.255.255.0
LAN	Gateway	10.1.1.200
NAT	DNS	0.0.0.0
Route	Secondary DNS	0.0.0.0
UPnP	Connection Type	DHCPC
Vdsl2	Release	Renew
	GATEWAY	
	IP Address	192.168.1.100
	Subnet Mask	255.255.255.0
	DHCP Server	Disable
	INFORMATION	
	Connected Clients	0
	Firmware Version	2.4.20 PLANET v0.91b070323
	LAN MAC Address	00:30:4F:C0:C0:C0
	WAN MAC Address	00:30:4F:C0:C0:C1
	Hardware Version	1.00.00
		HELP

- Click "Release" to release IP Address for the WAN interface.
- Click "**Renew**" to renew the IP Address for the WAN interface.

3.5.3.7 System Logs

To view the system logs, click on the **System Logs** link in the left navigation bar, show as below.

PLANET Networking & Communication		Home Logout
System Host Name Config System Time Administrator Settings Firmware Upgrade Device Mode System Status System Log Based	Security Log View any attempts that have been made to gain access to your network. Log File Jan 1 00:00:03 (none) syslog.info syslogd started: BusyBox v1.00 ^ Jan 1 00:00:20 (none) daemon.info init: ^MStarting pid 225, conso	
WAN LAN NAT Route UPnP Vdsl2	Download Clear Refresh	

Filed	Description
Log File	This lists all the system events.

- Click "**Download**" to download the log file to the computer.
- Click "Clear" to clear this page.
- Click "**Refresh**" to retrieve system event and update the log file.

3.5.3.8 Reset

To restart the system, click on the **Reset** link in the left navigation bar, show as below.



• Click "**Reset**" to restart the system.

3.5.4 WAN

The WAN settings can be viewed in the left navigation bar. The following are the options available under WAN, show as below.

- Dynamic IP
- Static IP
- PPPoE
- DNS



3.5.4.1 Dynamic IP

To configure the WAN interface to dynamically obtain an IP Address, click on the **Dynamic IP** link in the left navigation bar, show as below.

PLANET Networking & Communication	
System WAN Dynamic IP I P Settings P PPPOE D DNS LAN NAT Route UPNP Vdsl2	Dynamic IP The default MAC address is set to the WAN's physical interface.
	HELP (APPLY CANCED

- Click "**APPLY**" to save the information that has been entered.
- Click "CANCEL" to exit from this page.

3.5.4.2 Static IP

To configure the WAN interface to use a Static IP Address, click on the **Static IP** link in the left navigation bar, show as below.

PLANET Networking & Communication	Home
System WAN Dynamic IP IP Settings D PPPoE	IP Settings If your Service Provider has assigned a fixed IP address, enter the assigned IP Address, Subnet Mask and ISP Gateway Address provided.
LAN NAT Route UPnP Vdsl2	IP address assigned by your IP ISP IP Subnet Mask IP ISP Gateway Address IP
	Does ISP provide more IP addresses
	HELP APPLY CAUEL

Filed	Description
IP Address assigned by your ISP	Enter the IP Address of VC-200M/VC-200S.
Subnet Mask	Enter the Subnet Mask of VC-200M/VC-200S.
ISP Gateway Address	Enter the Gateway address of VC-200M/VC-200S.
Does ISP provide more IP Address	Provides more IP Addresses of the WAN interface. Select the check box to enable this option.

3.5.4.3 PPPoE

To configure the WAN interface to use PPPoE, click on the **PPPoE** link in the left navigation bar, show as below.

	Home	1 6
System WAN Dynamic IP IP Settings DNS LAN NAT Route UPnP VdSI2	PPPoE Enter the PPPoE user name and password assigned by your Service Provider. The Service Name is normally optional, by may be required by some service providers. Enter a Maximum Idle Time (in minutes doine a maximum period of time for which the Internet connection is sinatiated during inactivity. If the connection is inactive for longer than the defined Maximum Idle Time, then it will be dropped You can end the Auto-reconnect option to automatically re-establish the connection as soon as you attempt to access the internet again. If your Internet Service Provider requires the use of PPPoE, enter the information below. User Name Please retype your password Service Name MTU (1400-1452) 1492 Maximum Idle Time (minutes) Auto-reconnect)to ıble he

The screen contains the following details:

Filed	Description
User Name	Enter a name to use the PPPoE session.
Password	Enter the password of login user.
Re-Type Password	Enter the password to reconfirm.
Service Name	Enter a service name.

MTU	Enter the maximum connection units of the PPPoE. The MTU range is 1400 to 1492 bytes, by factory default is 1492 .
Maximum Idle Time	This is the period of time required to keep the connection alive if no packets are transmitted. If no packets are transmitted between LAN port and WAN port or between VC-200M/VC-200S and WAN, the connection is disconnected after the " Maximum Idle Time " If the Auto-reconnect check box is selected, the PPP connection is re-established if there is some data that is received from the upper layers to be transmitted on this link.

- Click "CANCEL" to exit from this page without saving the changes.
- Click "**APPLY**" to save the information that has been entered.

3.5.4.4 DNS

Domain Name Service (DNS) stores and associates many types of information with domain names.

Most importantly, it translates domain names (computer hostnames) to IP addresses. It also lists mail exchanges servers accepting e-mail for each domain.

In providing a worldwide keyword-based redirection service, DNS is an essential component of contemporary Internet use.

DNS service must translate the name into the corresponding IP address. For example, the domain name www.example.com might translate to 198.105.232.4.

To configure the DNS address, click on the **DNS** link in the left navigation bar, show as below.

PLANET Networking & Community of the	Home Logout
System WAN Dynamic IP IP Settings PPPOE DNS LAN NAT ROULE UPnP Vdsl2	DNS A Domain Name system (DNS) server is like an index of IP addresses and Web addresses. If you type a Web address into you browser, such as <u>www.planet.com.tw</u> , a DNS server will find that name in its index and find the matching IP address : 211.75.117.120. Most ISPs provide a DNS server for speed and convenience. Since your Service Provider many connect to the Internet with dynamic IP settings, it is likely that the DNS server IP addresses are also provided dynamically. However, if there is a DNS server that you would rather use, you need to specify the IP address below. Domain Name Server Domain Name Server Domain Name Server Domain Name Server Domain Option DDS Address DDS
	HELP APPLY CALLED

Filed	Description
Domain Name Server(DNS) Address	Enter the DNS address of the primary DNS server.
Secondary DNS Address(optional)	Enter the address of the secondary DNS server, if available.

- Click "CANCEL" to exit from this page without saving the changes.
- Click "**APPLY**" to save the information that has been entered.

3.5.5 LAN

The LAN setting can be viewed in the left navigation bar. The following are the options available under LAN, show as below.

- LAN settings
- DHCP Client List

.....

	Home Logout
System WAN LAN LAN Settings DHCP client List	LAN The Router must have an IP address for the local network. You can also enable DHCP service for dynamic IP address allocation to your clients, or configure filtering functions based on specific clients or protocols.
NAT	
Route	
Vdsl2	

3.5.5.1 LAN Setting

To configure the LAN interface, click on the **LAN Setting** link in the left navigation bar, show as below.

The **D**ynamic **H**ost Configuration **P**rotocol (DHCP) Server gives out IP addresses when a device is booting up and request an IP to be logged on to the network. It must be set as a DHCP client to obtain the IP address automatically.

Note: By factory default, the DHCP is disabled, VC-200M's default LAN IP address is 192.168.1.100, and VC-200S is 192.168.1.200.

PLANET Networking & Communication			Home Logout
System WAN LAN LAN LAN Settings DHCP Client List NAT Route UPnP Vdsl2	LAN Settings You can enable DHCP to dynam IP Address Subnet Mask The Gateway acts as DHCP Server	nically allocate IP addresses to your client PCs. 192 168 1 100 255.255.255.0 Enable	
		HELP APPLY CANCEL	

The screen contains the following details:

Filed	Description
IP Address	Enter the LAN interface IP Address of VC-200M/VC-200S
Subnet Mask	Enter the LAN Subnet Mask of VC-200M/VC-200S
The Gateway acts as DHCP Server	Enable or disables the DHCP Server of the of VC-200M/VC-200S. Select the check-box to enable this option.
IP Pool Starting Address	Enter the starting IP Address of the DHCP server.(When Enable DHCP Server)

IP Pool Ending Address	Enter the ending IP Address of the DHCP server. (When Enable DHCP Server)
Lease Time	Select the lease time of the DHCP server. (When Enable DHCP Server)
Local Domain Name	Enter the Domain Name of the DHCP server. (When Enable DHCP Server)

- Click "CANCEL" to exit from this page without saving the changes.
- Click "**APPLY**" to save the information that has been entered.

3.5.5.2 DHCP Client List

To view the DHCP client list, click on the **DHCP Client List** link in the left navigation bar, the screen is displayed to list all DHCP client connection with IP Address and MAC Address, show as below.

PLANET Networking & Communication		Home Logout
System WAN LAN DAN Settings DHCP Client List	DHCP Client List The DHCP client list allows you to see and MAC address.	which clients are connected to the Router via IP address, host name,
NAT	IP Address	MAC Address
Route UPnP		
Vdsl2		
		HELP

3.5.6 NAT

Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single public IP address or multiple public IP addresses. NAT can also prevent hacker attacks by mapping local addresses to public addresses for key services such as the Web or FTP. The NAT Settings can be viewed in the left navigation bar. The following are the options available under NAT, show as below.

- Virtual Server
- Port Mapping
- DMZ

PLANET Retworking & Communication	Home Logout
System WAN LAN NAT Virtual Server Port Mapping DMZ Route UPnP VdSl2	NAT Settings Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single public IP address or multiple public IP addresses. NAT can also prevent hacker attacks by mapping local addresses to public addresses for key services such as the Web or FTP.

3.5.6.1 Virtual Server

You can configure the Router as a virtual sever so that remote users can access services such as the Web or FTP server at your local site via public IP address. These addresses can be automatically redirected to local servers configured with private IP addresses. In other words, depend on the requested service (TCP/UDP port numbers). The Router redirects the external service request to the appropriate server (located at another internal IP address)

To configure virtual server, click on the **Virtual Sever** link in the left navigation bar, show as below.

Networking & Communication									
System WAN LAN NAT Virtual Server	Vi You FT cou	rtual Server u can configure t P at your local si nfigured with priv mbers), the Rout	he Router as a v te via public IP a rate IP addresse er redirects the	virtual server so addresses. The es. In other word external service	that remote u se addresses ls, depending request to the	sers access can be auto on the requ e appropriat	sing services such omatically redirec ested service (TC e server (located	n as the Web or ted to local serv CP/UDP port at another inter	ers
Port Mapping DMZ	IP :	address)							
Port Mapping DMZ Route	IP :	address) Private IP	Private Port	Туре	Public Port	Enabled			
Port Napping DMZ Route UPnP VdsI2	IP :	address) Private IP 192.168.1.	Private Port	Type	Public Port	Enabled			
Port Mapping DMZ Route UPnP Vdsl2	IP : 1 2	address) Private IP 192.168.1. 192.168.1.	Private Port	Type © TCP C UDP © TCP C UDP	Public Port	Enabled			
Port Mapping DMZ Route UPnP VdsI2	IP : 1 2 3	Private IP 192.168.1. 192.168.1. 192.168.1.	Private Port	Type • TCP • UDP • TCP • UDP • TCP • UDP • TCP • UDP	Public Port	Enabled			
Port Mapping DMZ Route UPnP VdsI2	IP : 1 2 3 4	Private IP 192.168.1. 192.168.1. 192.168.1. 192.168.1. 192.168.1.	Private Port	Type © TCP C UDP © TCP C UDP © TCP C UDP © TCP C UDP	Public Port	Enabled			

Filed	Description
Private IP	Enter a private IP Address of specified entry.
Private Port	Enter a private Port number of the specified entry.
Туре	Select virtual server protocol type of the specified entry.
Public Port	Enter a public Port number of the internet user to access the virtual server.
Enabled	Enable the specified entry of the virtual server.

- Click "CANCEL" to exit from this page without saving the changes.
- Click "APPLY" to save the information that has been entered.

3.5.6.2 Port Mapping

For some applications, you need to assign a set or a range of port to a specified local machine to route the packets. Router allows the user to configure the needed port mappings to suit such application.

To configure Port Mapping, click on the **Port Mapping** link in the left navigation bar, show as below.

PLANET Networking & Communication						Home Lo	gout
System WAN LAN NAT Virtual Server	P Fr m	ort Mapping or some applications, achine to route the par appings to suit such a	you need to assign a set ckets. Router allows the u pplications	or a range of ports f user to configure the	o a specifie needed por	d local t	
Port Mapping		Server IP	Mapping P	orts	Enabled		
Route	1	192.168.1.					
UPnP	2	192.168.1.					
Vasi2	3	192.168.1.					
	4	192.168.1.					
	5	192.168.1.					
				HE	LP APPLY	CARGE	

Filed	Description
Server IP	Enter the IP Address of a specified local machine.
Mapping Port	Assign a range of port or specific port number to route the packets. e.g. 8080-8081,21
Enabled	Enable a specified entry of the Port Mapping.

- Click "CANCEL" to exit from this page without saving the changes.
- Click "APPLY" to save the information that has been entered.

3.5.6.3 DMZ

A **DMZ** (de-militarized zone) is a host between a private local network and the outside public network. It prevents outside users from getting direct access to s server that has company data. Users of the public network outside the company can access only the DMZ host.

To configure the DMZ, click on the **DMZ** link in the left navigation bar, show as below.

		Home Logout
System WAN LAN NAT Port Mapping DMZ Route UPnP Vdsl2	DMZ(Demilitarized Zone) If you have a local client PC that canno can open the client up to unrestricted to Enable IP Address of Virtual DMZ Host	t run an Internet application properly from behind the NAT firewall, you wo-way Internet access by defining a virtual DMZ Host.
		HELP APPLY CALLED

Filed	Description
Enable	Enable or disable the DMZ setting of VC-200M/VC-200S.Select the check box to enable this option.
IP Address	Enter IP Address of the DMZ host.

- Click "CANCEL" to exit from this page without saving the changes.
- Click "**APPLY**" to save the information that has been entered.

3.5.7 Route

The Route Settings can be viewed in the left navigation bar. The following are the options available under Route, show as below.

- Static Routing
- Routing Table List

PLANET Networking & Communication	Home Logout
System WAN LAN NAT Static Routing Routing Table List UPnP VdSI2	Routing Settings If there are multiple routers installed on your network, it is necessary to configure the Router unit's routing functions.

3.5.7.1 Static Route

The static routing function determines the path that data follows over your network before and after it passes through your router. You can use static routing to allow different domain users to access the Internet through this Router.

To setup Static Routing, click on the **Static Routing** link in the left navigation bar, show as below.

PLANET Networking & Communication		Home Logout
System WAN LAN NAT Route Static Routing	Static Routing The static routing function through your router. You through this Router devi	on determines the path that data follows over your network before and after it passes i can use static routing to allow different IP domain users to access the Internet ice.
Routing Table List UPnP Vdsl2	Interface Destination IP Subnet Mask Gateway	
	Destination IP Subne	t Mask Gateway Interface

The screen contains the following details:

Filed	Description
Interface	Select the direction of WAN or LAN.
Destination IP	Enter the IP Address of routing entry.
Subnet Mask	Enter the Subnet Mask of routing entry.
Gateway	Enter the Gateway address of routing entry.

- Click "Add" to add the information that has been entered.
- Click "CANCEL" to exit from this page without saving the changes.

Example:



PC2 can go to Internet through VC-200M/VC-200S, so please reference as below to fill in static routing table.

Interface: LAN Destination IP: 203.67.31.0 Subnet mask: 255.255.255.0 Gateway: 192.168.1.3

3.5.7.2 Routing Table List

To view the Routing entry table list of VC-200M/VC-200S, click on the **Routing Table** by link in the left navigation bar, show as below.

PLANET Networking & Communication						Home Logout
System WAN LAN NAT Route Static Routing	Routing Ta The Routing ta Destination	able able allows you Subnet Mask	to see how m Gateway	any routings on yo Metric	ur Router routin	ng table and interface information.
Routing Table List UPnP Vdsl2	192.168.1.0	255.255.255.0	0.0.0.0	0	LAN	HELP

• Click "**Refresh**" to update currently routing list of VC-200M/VC-200S.

3.5.8 UPnP

<u>UPnP (Universal Plug and Play)</u> is a distributed, open networking standard that uses TCP/IP for simple peer-to-peer network connectivity between devices. An UPnP device can dynamically join a network, obtain an IP address, convey its capabilities and learn about other devices on the network. In turn, a device can leave a network smoothly an automatically when it is no longer in use. UPnP broadcasts are only allowed on the LAN.

How do I know if I'm using UPnP?

UPnP hardware is identified as an icon in the Network Connections folder (in Windows XP & Windows ME). Each UPnP-compatible device that is installed on your network will appear as a separate icon.

The UPnP settings can be viewed in the left navigation bar. The following are the options available under UPnP, show as below.



• Settings

3.5.8.1 Settings

To enable or disable the UPnP settings, click on the Settings link in the left navigation bar, show as below.

PLANET Returking & Communication	Home Logout
System WAN LAN ¹⁷ NAT Route UPnP Ø settings Vdsl2	UPnP is an architecture for pervasive peer-to-peer network connectivity of intelligent appliances, wireless devices, and PCs of all from factors. It is designed to bring easy-to-use, flexible, standards-based connectivity to ad-hoc or unmanaged networks whether in the home, in a small business, public spaces, or attached to the Internet. The supports the UPnP InternetGatewayDevice for Home Networking.
	HELP APPLY CALLED

Filed	Description
Enable UPnP	To enable or disable UPnP Setting. Select the check box to
	Enable or Disable the UPnP function of VC-200M/VC-200S.

- Click "CANCEL" to exit from this page without saving the changes.
- Click "**APPLY**" at any time during configure to save the information that you have been entered.

Chapter 4 Operating the VDSL2 System

4.1 Configuration Settings

Configure and start the VC-200M and the CPE.

- Configuration: As a minimum configuration, usually selecting the profile is required. See **Chapter 4.1.3**, Profile Configuration
- Next, both sides should be activated from the Web UI. See **Chapter 4.1.4**, Line Activation
- The connection status of the link can be monitored. See **Chapter 4.1.5**, Channel Status

4.1.1 Channel Configuration

To set direction, Min Data Rate, Max Date Rate, and Max Interleve Delay of channl1, click on the **ChannelConfig** in the left navigation bar, show as below.

PLANET Networking & Communication				Home Logout
System WAN LAN NAT Route UPNP Vdsl2 D thannelConfig D ProfileConfig D Activate D thannelStatus D VersionInfo	Channel Config Configuration of line per b Direction Min Data Rate Max Data Rate Max Interleave Delay	earer basis. Upstream v 64 103980 0	kbps kbps ms	

The screen contains the following details:

Setting	Description			
Direction	To which direction shall the settings apply?			
	• Upstream			
	• Downstream			
Min Date Rate	Minimum Payload Date Rate, by factory default is 64 kbps .			
Max Date Rate	Maximum Payload Date Rate, by factory default is 15000 kbps .			
Max Interleave Delay	Maximum Interleave Delay, by factory default is 10ms .			

- Click "CANCEL" to exit from this page without saving the changes.
- Click "**APPLY**" at any time during configure to save the information that you have been entered.

4.1.2 Line Configuration

Signal-to-Noise Ratio, often written S/N or SNR, is a measure of signal strength relative to background noise. The ratio is usually measured in decibels (**dB**).

If the incoming signal strength in microvolts is V_s , and the noise level, also in microvolts, is V_n , then the signal-to-noise ratio, S/N, in decibels is given by the formula

$$S/N = 20 \log_{10} (V_s/V_n)$$

If $V_s = V_n$, then S/N = 0. In this situation, the signal borders on unreadable, because the noise level severely competes with it. In digital communications, this will probably cause a reduction in data speed because of frequent errors that require the source (transmitting) computer or terminal to resend some packets of data.

Ideally, V_s is greater than V_n , so S/N is positive. As an example, suppose that $V_s = 10.0$ microvolts and $V_n = 1.00$ microvolt. Then

$$S/N = 20 \log_{10} (10.0) = 20.0 dB$$

This results in the signal being clearly readable. If the signal is much weaker but still above the noise -- say 1.30 microvolts -- then

$$S/N = 20 \log_{10} (1.30) = 2.28 \text{ dB}$$

This is a marginal situation. There might be some reduction in data speed under these conditions.

If V_s is less than V_n , then S/N is negative. In this type of situation, reliable communication is generally not possible unless steps are taken to increase the signal level and/or decrease the noise level at the destination (receiving) computer or terminal.

To select the direction and target SNRM of line, click on the **Line Confing** link in the left navigation bar, show as below.

PLANET Networking & Communication				Home Logout
System WAN LAN NAT Route UPnP Vds12	Line Config Configuration of line . Direction Target SNRM	Upstream 💌 6.000000	dB	
 LineConfig ProfileConfig Activate ChannelStatus VersionInfo 			HELP APPLY CALLER	

Setting	Description
Direction	Select the target direction of downstream or upstream.
Target SNRM	Set the required SNR Margin×10(50=5dB), by default is 6dB .

- Click "CANCEL" to exit from this page without saving the changes.
- Click "**APPLY**" at any time during configure to save the information that you have been entered.

4.1.3 Profile Configuration

VDSL2 was developed and standardized in record time to address the shortcomings of existing access technologies. It servers as the ideal xDSL technology for eliminating last-mile bottlenecks and enable global mass deployment of advance Triple Play services.

Unlike its predecessor, which allowed choosing either DMT (Discrete Multitone) or QAM (Quadrature Amplitude Modulation) technology, VDSL2 only uses the DMT line code.

DMT is a method of separating a DSL signal so that the usable frequency range is separated into multiple small frequency bands, or tone. It uses up to 4096 tones which are spaced 4 kHz or 8 kHz apart. Each tone can be used for either downstream or upstream.

However VC-200M/VC-200S provide 10 VDSL2 profiles: 8a, 8b, 12a, 12b, and 17a

frequency bands.

Table 1 list 8a, 8b, 21a, 12b, and 17a standard VDSL2 profile about the bandwidth, tones, tone spacing, and line power.

Profile	8a	8b	12a	12b	17a
Bandwidth (MHz)	8.832	8.832	12.	12.	17.664
Tones	2048	2048	2783	2783	4096
Tone Spacing (kHz)	4.3125	4.3125	4.3125	4.3125	4.3125
Line Power (dBm)	+17.5	+ 20.5	+14.5	+14.5	+14.5

<Table 1>

To select VDSL2 profile, click on the **ProfileConfig** link in the left navigation bar, show as below.

PLANET Networking & Communication		Home Logour	t
System WAN LAN	Profile Confi Configuration of I	g ine for specific band plans.	
NAT Route UPnP VdSI2 ¢ ChannelConfig	Profile	Vdsl2 Profile17a - Bandplan ITU Annex B_B12 🗸	
 ProfileConfig Activate ChannelStatus 			
₽ VersionInfo		HELP APPLY CANE	

The screen contains the following details:

Setting	Description
Profile	Select the ten standard VDSL2 profiles.

- Click "CANCEL" to exit from this page without saving the changes.
- Click "**APPLY**" at any time during configure to save the information that you have been entered.

Note: By factory default is VDSL2 Profile 17a-Bandplan ITU AnnexB_B12.

4.1.4 Active

To enable or disable VDS12, click on the **Active** link in the left navigation bar, show as below.

				Home Logout
System WAN LAN NAT Route UPnP Vdsl2 D channelConfig D profileConfig D profileConfig D profileConfig D channelStatus D channelStatus	Activate Deac Activating or Deact Line	tivate ivating the line		
			HELP APPLY CALLED	

The screen contains the following details:

Setting	Description
Line	Activate or deactivate the line.

- Click "CANCEL" to exit from this page without saving the changes.
- Click "**APPLY**" at any time during configure to save the information that you have been entered.

4.1.5 Channel Status

To view the channel status is about Date Rate, Delay, Error Counters and Impulse Noise Protection.

PLANET Networking & Communication				Home Logout
System WAN	Channel Status			
LAN	Status of the bearer .			
NAT				-1
Route		Upstream	Downstream	
UPHP	A shared Data Data	25252 khns	97484 khns	
Vdsl2	Actual Data Rate	2020210000	0140410000	
Vdsl2 ChannelConfig	Actual Data Rate	17.000000 ms	4.000000 ms	
Vdsl2 © ChannelConfig © LineConfig	Actual Interleave Delay	17.000000 ms	4.000000 ms	
Vdsl2 ChannelConfig LineConfig ProfileConfig	Actual Data Rate Actual Interleave Delay Total CRC Count	17.000000 ms 0	4.000000 ms 0	
Vdsl2 ChannelConfig LineConfig ProfileConfig Activate	Actual Data Rate Actual Interleave Delay Total CRC Count Total FEC Count	17.000000 ms 0 0	4.000000 ms 0 0	

4.1.6 Version Information

To view the version information is about Web UI, API Library, Chipset FW, Chipset HW, and DSL Driver.

PLANET Networking & Communication			Home Logout
System WAN LAN NAT	Version Info Version Numbers.		
Route UPnP	PLANET Web Interface Version	0.3.0	
Vdsl2 ChannelConfig	DSL API Library Version	1.7.3	
LineConfig ProfileConfig	Chip Set FW Version	9.6.3.11.0.2	
Activate	Chip Set HW Version	VINAX-DFE_V1.3_mono_reticle	
 ChannelStatus VersionInfo 	DSL Driver Version	0.1.2.1	

Appendix A Field Throughput for VDSL2 profiles

Router Mode

Band Profile Distance	8a, 8b	12a, 12b	17a
400 Meter (1312 feet)	20 / 5	15 / 15	15 / 15
1000 Meter (3281 feet)	20 / 5	20 / 5	20 / 5

(Downstream/Upstream, Unit: Mbps)

Bridge Mode

Band Profile Distance	8a, 8b	12a , 12b	17a
400 Meter (1312 feet)	50 / 10	50 / 30	100 / 30
1000 Meter (3281 feet)	30 / 10	30 / 10	30 / 10

(Downstream/Upstream, Unit: Mbps)

The actual data rate will vary on the quality of the telephone line and environment factors.

Appendix B Glossary

DHCP

DHCP stands for Dynamic Host Configuration Protocol. This protocol automatically configures the TCP/IP settings of every computer on your home network.

DNS Server Address

DNS stands for Domain Name System, which allows Internet host computers to have a domain name (such as www.planet.com.tw) and one or more IP addresses (such as 192.34.45.8). A DNS server keeps a database of host computers and their respective domain names and IP addresses, so that when a domain name is requested (as in typing "www.planet.com.tw" into your Internet browser), the user is sent to the proper IP address. The DNS server address used by the computers on your home network is the location of the DNS server your ISP has assigned.

DSL Modem

DSL stands for Digital Subscriber Line. A DSL modem uses your existing phone lines to transmit data at high speeds.

Ethernet

A standard for computer networks. Ethernet networks are connected by special cables and hubs, and move data around at up to 100 million bits per second (Mbps).

IP Address

IP stands for Internet Protocol. An IP address consists of a series of four numbers separated by periods that identifies a single, unique Internet computer host. Example: 192.34.45.8.

ISP Gateway Address

(See ISP for definition). The ISP Gateway Address is an IP address for the Internet router located at the ISP's office. This address is required only when using a cable or DSL modem.

ISP

Internet Service Provider. An ISP is a business that provides connectivity to the Internet for individuals and other businesses or organizations.

LAN

Local Area Network. A LAN is a group of computers and devices connected together in a relatively small area (such as a house or an office). Your home network is considered a LAN.

MAC Address

MAC stands for Media Access Control. A MAC address is the hardware address of a device connected to a network.

NAT

Network Address Translation. This process allows all of the computers on your home network to use one IP address. The NAT capability of the Device, allows you to access the Internet from any computer on your home network without having to purchase more IP addresses from your ISP.

Network Address Translation can be used to give multiple users access to the Internet with a single user account, or to map the local address for an IP server(such as Web or FTP) to a public address. This secures your network from direct attack by hackers, and provides more flexible management by allowing you to change internal IP addresses without affecting outside access to your network. NAT must be enabled to provide multi-user access to the Internet or to use the Virtual Server function.

PPPoE

Point-to-Point Protocol over Ethernet. Point-to-Point Protocol is a method of secure data transmission originally created for dial-up connections. PPPoE is for Ethernet connections.

Subnet Mask

A subnet mask, which may be a part of the TCP/IP information provided by your ISP, is a set of four numbers configured like an IP address. It is used to create IP address numbers used only within a particular network (as opposed to valid IP address numbers recognized by the Internet.

TCP/IP

Transmission Control Protocol/Internet Protocol. This is the standard protocol for data transmission over the Internet.

WAN

Specify the WAN connection type required by your Internet Service Provider, then click "Apply" to provide detailed configuration parameters for the selected connection type. Specify one of the first five options to configure a WAN connection through the RJ-45 port.